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IN THE UNITED STATES PATENT  
AND TRADEMARK OFFICE

In Re the Application of: John L. Schenk  
Serial Number: 09/478,299  
Filed: January 5, 2000  
Parent Title: Method of Cryopreserving Selected Sperm Cells  
Group Art Unit: 1654  
Examiner: M. Meller  
Assignee: XY, Inc.

**SUBMISSION UNDER 37 C.F.R. § 1.114**

Assistant Commissioner for Patents  
Box RCE  
Washington, DC 20231

The Applicant formally withdraws from appeal of the above-identified application and hereby the following submission under 37 C.F.R. 1.114, as a Request for Continued Examination. This Request for Continued Prosecution responds to the concerns raised in the official communication mailed December 18, 2002. The applicant further submits an Information Disclosure Citation to consolidate the references originally cited by the applicant and those cited by the examiner in prior official communications.

## **SUBMISSION**

Pursuant to 37 C.F.R. §1.121, the applicant submits a clean set of claims as amended. The applicant has consolidated all separate amendments to the claims into a single clean version which is to be construed as a cancellation of all previous versions of the claims with respect to this application. The applicant respectfully requests entry of the clean version of the claims as set forth beginning on the next separate page:

38. A method of freezing sex-selected sperm cells, comprising:

- (a) obtaining sperm cells from a male of a species of mammal;
- (b) sorting said sperm cells based upon sex-type; ?
- (c) cooling sex-selected sperm cells;
- (d) isolating a portion of said sex-selected sperm cells;
- (e) suspending said portion of said sex-selected sperm cells in an extender;
- and
- (f) freezing said sex-selected sperm cells in said extender to provide fertile sex-selected sperm cells upon thawing.

what other species produce sperm.

class. 60-62

39. The method of freezing sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal comprise bovine sperm cells.

40. The method of freezing sperm cells as described in claim 39, wherein said step of isolating a portion of said sex-selected sperm cells comprises isolating a number of bovine sperm cells between about 300,000 and about 3,000,000.

41. The method of freezing sperm cells as described in claim 39, wherein said step of isolating a portion of said sex-selected sperm cells comprises isolating a number of bovine sperm cells of no more than about 1,000,000.

42. The method of freezing sex-selected sperm cells as described in claim 38, wherein said sperm cells from said species of said male mammal comprise equine sperm cells.

43. The method of freezing sex-selected sperm cells as described in claim 42, wherein said step of isolating a portion of said sex-selected sperm cells comprises isolating a number of equine sperm cells between about 1,000,000 million and about 25,000,000.

44. The method of freezing sex-selected sperm cells as described in claim 42, wherein said step of isolating a portion of said sex-selected sperm cells comprises isolating a number of equine sperm cells of no more than about 5,000,000.

45. The method of freezing sex-selected sperm cells as described in claim 38, wherein said step of cooling sex-selected sperm cells comprises reducing the temperature of said sex-selected sperm cells to about 5°Celsius.

46. The method of freezing sex-selected sperm cells as described in claim 45, wherein said step of reducing the temperature of said sex-selected sperm cells comprises reducing the temperature of said sex-selected sperm cells over a period of about 60 minutes to about 240 minutes.

47. The method of freezing sex-selected sperm cells as described in claim 38, wherein said extender further comprises a component which maintains osmolality and buffers pH. ①

48. The method of freezing sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of a buffer comprising a salt, a buffer containing a carbohydrate, and any combination thereof. ② P.

49. The method of freezing sex-selected sperm cells as described in claim 47, wherein said component which maintains osmolality and buffers pH is selected from the group consisting of sodium citrate, Tris[hydroxymethyl]aminomethane, N-Tris[hydroxymethyl]methyl-2-aminoethanesulfonic acid, monosodium glutamate, milk, HEPES buffered medium, and any combination thereof. ③ P.

50. The method of freezing sex-selected sperm cells as described in claim 47, 48, or 49, wherein said extender has a pH in the range of about 6.5 to about 7.5. ④

51. The method of freezing sex-selected sperm cells as described in claim 47, wherein said extender further comprises a cold shock protectant. ⑤

52. The method of freezing sex-selected sperm cells as described in claim 51, wherein  
said cold shock protectant is selected from the group consisting of egg yolk, an egg yolk  
extract, milk, a milk extract, casein, albumin, lecithin, and any combination thereof. SP.
53. The method of freezing sex-selected sperm cells as described in claim 51, wherein  
said extender further comprises an energy source. Q
54. The method of freezing sex-selected sperm cells as described in claim 53, wherein  
said energy source is selected from the group consisting of a saccharide, glucose,  
fructose, mannose, and any combination thereof. SP.
55. The method of freezing sex-selected sperm cells as described in claim 53, wherein  
said extender further comprises an antibiotic. Q
56. The method of freezing sex-selected sperm cells as described in claim 55,  
wherein said antibiotic is selected from the group consisting of tylosin, gentamicin,  
lincomycin, linco-spectin, spectinomycin, penicillin, streptomycin, and any combination  
thereof. SP.
57. The method of freezing sex-selected sperm cells as described in claim 47, 51, 53,  
or 55, wherein said extender further comprises a cryoprotectant. S
58. The method of freezing sex-selected sperm cells as described in claim 57,  
wherein said cryoprotectant is selected from the group consisting of disaccharides,  
trisaccharides, and any combination thereof. SP. Q
59. The method of freezing sex-selected sperm cells as described in claim 57,  
wherein said cryoprotectant is selected from the group consisting of glycerol, dimethyl  
sulfoxide, ethylene glycol, propylene glycol, and any combination thereof. SP. Q

60. The method of freezing sex-selected sperm cells as described in claim 38, wherein  
the extender in which said portion of said sex-selected sperm cells is suspended  
comprises glycerol, sodium citrate, Tris[hydroxymethyl]aminomethane, egg yolk,  
fructose, and one or more antibiotics.

61. The method of freezing sex-selected sperm cells as described in claim 38, wherein  
the extender in which said portion of said sex-selected sperm cells is suspended  
comprises glycerol, sodium citrate, egg yolk, and one or more antibiotics.

62. The method of freezing sex-selected sperm cells as described in claim 38, wherein  
the extender in which said portion of said sex-selected sperm cells is suspended  
comprises glycerol, egg yolk, milk, fructose, and one or more antibiotics.

63. The method of freezing sex-selected sperm cells as described in claim 38, further  
comprising the step of equilibrating said portion of said sex-selected sperm cells  
suspended in said extender prior to freezing over a period of about 1 hour to about 18  
hours.

64. The method of freezing sex-selected sperm cells as described in claim 38, further  
comprising the step of equilibrating said portion of said sex-selected sperm cells  
suspended in said extender prior to freezing over a period of not greater than 6 hours.

65. A frozen sex-selected sperm sample in accordance with the method of claim 38.